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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/501,954

08/10/2004

Ville Ruutu

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8677

32294 7590 10/12/2007
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EXAMINER

LY, HIEN QUANG

ART UNIT

PAPER NUMBER

3662

MAIL DATE

DELIVERY MODE

10/12/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/501,954 | Applicant(s) RUUTU ET AL. | |
| | Examiner Hien Ly | Art Unit 3662 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Receipt is acknowledged of applicant's amendment filed on August 03, 2007.
Claims **1-19** are pending and an action on the merits is as follows.

Applicant's arguments with respect to claims **1** and **16-19** have been considered but are moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims **1-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Zhao ('6,452,541)** in view of **Goldman ('6,016,322)** and **Moon (6,405,047)**.

Regarding **claim 1**, Zhao discloses assistance data from the station and timing information of a positioning system. See column 2, line 10-13.

Zhao fails to disclose steps of determining of likely location relative to the station, a delay based on the determined likely location, a more accurate location determination at the user equipment, and the location determined based on information signaled from entities of positioning system and assistance data signaled from the station of the communication system.

However, Goldman discloses:

- The determination of likely location relative to the station and a delay based on the determined likely location. See column 5, lines 6-19 (" time delay, using the GPS position in determining the time delay"), and column 6, lines 18-27 (" the control procedure 316, mobile station 204, and base station 206").
- A more accurate location determination at the user equipment. See column 5, lines 6-19 (" time delay, using the GPS position in determining the time delay"), and column 6, lines 18-27 (" the control procedure 316, mobile station 204, and base station 206").
- The location determined based on information signaled from entities of positioning system and assistant data signaled from the station of the communication system. See column 5, lines 6-19 (" time delay, using the GPS position in determining the time delay"), and column 6, lines 18-27 (" the control procedure 316, mobile station 204, and base station 206").

It would have been obvious to modify Zhao to include steps of determining of likely location relative to the station, a delay based on the determined likely location, a more accurate location determination at the user equipment, and the location determined based on information signaled from entities of positioning system and assistant data signaled from the station of the communication system in teaching of Goldman in order to efficiently eliminate the need of the guard time.

Zhao in view of Goldman fail to disclose a step of determining an estimate of the delay between the transmission of a signal from the station and reception of signal at the mobile user equipment.

However, Moon discloses a step of determining an estimate of the delay between the transmission of a signal from the station and reception of signal at the mobile user equipment. See column 5, lines 18-28 ("reference time t' lags and the propagation delay time occurs due to the distance between the mobile station and mobile station").

It would have been obvious to modify Zhao in view of Goldman to include a step of determining an estimate of the delay between the transmission of a signal from the station and reception of signal at the mobile user equipment in teaching of Moon in order to efficiently track a mobile station's position in a mobile communication system.

Regarding **claims 2 and 3**, Zhao discloses the estimated delay transmitted from the station to the mobile user. See column 2, line 44-48, and column 3, line 21-25.

Regarding **claim 4**, Zhao discloses the satellite positioning system. See column 1, line 64 and column 2, line 1-2.

Regarding **claim 5**, Zhao discloses the GPS. See column 1, line 17-20.

Regarding **claim 6-8**, Zhao discloses the delay estimate used to relate the timing of the positioning system with a certain signal from communication system / the assistance data signal. See column 2, line 10-13 and line 29-36. Also, column 4, line 19-24.

Regarding **claims 9 and 10**, Zhao discloses the likely location estimated based on the mass center of the coverage area of the station. See column 2, line 53-55, and column 5, line 5-8.

Regarding **claim 11**, Zhao discloses TA and RTT in estimation of delay. See column 2, line 49-55.

Regarding **claims 12-13**, Zhao fails to disclose that the likely location is determined based on information of the average location or signal strength measurement.

However, Moon successfully discloses the likely location determined based on information of the average location or signal strength measurement. Column 5, lines 1-6 ("the distances, phase difference information, and tone signals").

It would have been obvious to modify Zhao to include the likely location is determined based on information of the average location or signal strength measurement in teaching of Moon in order to efficiently track a mobile station's position in a mobile communication system.

Regarding **claims 14 and 15**, Zhao fails to disclose cell information regarding estimated delay in transmission of signals from the base station of the cell to mobile user equipment and the radio propagation conditions of signals.

However, Moon successfully discloses the estimated delay in transmission of signals from the base station to mobile user equipment and the radio propagation condition signals. See abstract (lines 4-7), and column 5, lines 18-28 ("reference time t'

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lags and the propagation delay time occurs due to the distance between the mobile station and mobile station”).

It would have been obvious to modify Zhao to include cell information regarding estimated delay in transmission of signals from the base station of the cell to mobile user equipment and the radio propagation conditions of signals in teaching of Moon in order to efficiently track a mobile station's position in a mobile communication system.

Regarding **claims 16 and 18**, Zhao discloses:

- A positioning system. Column 1, line 66-67, and column 2, line 1-2.
- A station of a communication. See column 2, line 44-48.

Zhao fails to disclose a location estimation unit configured to provide an estimate of the likely location of the mobile user equipment relative the station, a processor unit configured to provide an estimate of the delay based on the estimated location, and a location determination unit.

However, Goldman discloses:

- A location estimation unit configured to provide an estimate of the likely location of the mobile user equipment relative the station. See column 5, lines 6-19 (“time delay, using the GPS position in determining the time delay”), and column 6, lines 18-27 (“the control procedure 316, mobile station 204, and base station 206”).
- A processor unit configured to provide an estimate of the delay based on the estimated location. See column 5, lines 6-19 (“time delay, using the GPS

position in determining the time delay”), and column 6, lines 18-27 (“ the control procedure 316, mobile station 204, and base station 206”).

It would have been obvious to modify Zhao to include a location estimation unit configured to provide an estimate of the likely location of the mobile user equipment relative the station and a processor unit configured to provide an estimate of the delay based on the estimated location in teaching of Goldman in order to efficiently eliminate the need of the guard time.

Zhao in view of Goldman fail to disclose an estimate of the delay between transmission of an information signal from the station and reception of information signal at the mobile user.

However, Moon discloses an estimate of the delay between transmission of an information signal from the station and reception of information signal at the mobile user. See column 5, lines 18-28 (“ reference time t' lags and the propagation delay time occurs due to the distance between the mobile station and mobile station”).

Moon further discloses a location determination unit configured to determine the location of the mobile user equipment based on the signals from the entities of the position system, assistant data from the station. See abstract (lines 4-7), and column 5, lines 18-28 (“ reference time t' lags and the propagation delay time occurs due to the distance between the mobile station and mobile station”).

It would have been obvious to modify Zhao in view of Goldman to include an estimate of the delay between transmission of an information signal from the station and reception of information signal at the mobile user, and a location determination unit in

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teaching of Moon in order to efficiently track a mobile station's position in a mobile communication system.

Regarding **claims 17 and 19**, Zhao discloses:

- A first receiver to receive signals from a positioning system. Column 4, line 36-37.
- A second receiver to receive signals from a station. Column 4, line 28-33.

Zhao fails to disclose a location determination unit.

However, Goldman and Moon successfully disclose a location determination unit as previously discussed in claims **16 and 18**.

It would have been obvious to modify Zhao to include a location determination unit teaching of Goldman and Moon in order to efficiently eliminate the need of the guard time and track a mobile station's position in a mobile communication system.

Response to Arguments

It is noted that applicant does not separately argue for the feature of other claims.

Applicant's arguments filed on August 03, 2007 have been fully considered but they are not persuasive.

Regarding applicant's argument for claims **1 and 16-19**, applicant's arguments are moot in view of the new grounds rejection.

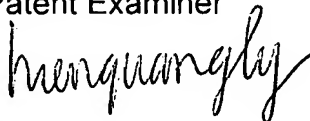
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Ly whose telephone number is 571-270-1326. The examiner can normally be reached on M-F: 7:00am - 4:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, THOMAS H. TARCZA can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patent Examiner



Hien Ly

September 14, 2007



THOMAS H. TARCZA
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TECHNOLOGY CENTER 3600